CLAIMS:

1.   A whipstock casing milling system for forming a window in the casing of a wellbore, the casing having an inwardly facing surface which defines the inside diameter of the casing and an outwardly facing surface which defines the outside diameter of the casing, the whipstock casing milling system comprising: a whipstock (44) having a whipface, the whipface comprising a relatively steep ramp surface (45) and a relatively shallow ramp surface or parallel surface (46) meeting the relatively steep ramp surface (45) at a juncture (A), said surfaces (45,46) being ramped or parallel relative to the longitudinal axis of the whipstock (44) and the relatively steep ramp surface having an angle to the longitudinal axis of the whipstock greater than that of the relatively shallow ramp surface or parallel surface; a window mill (32) secured to the whipstock (44) adjacent the relatively steep ramp surface (45) and operable in use to form an opening in a wellbore casing in which the whipstock casing milling system is located, the window mill (32) being deflected by the relatively steep ramp surface (45) laterally into the casing as the window mill (32) is rotated and forced along the relatively steep ramp surface (45) towards the relatively shallow ramp or parallel surface (46); and a protrusion (B) provided on the whipface, the protrusion (B) forming an extension of the relatively steep ramp surface (45) of the whipface, characterised in that, during use of the system, the diameter of the window mill (32) is greater than the distance from the juncture (A) to the radially opposite outwardly facing surface of casing, and in that the protrusion (B) reduces damage to the relatively steep ramp surface (45).

2.   A whipstock casing milling system as claimed in claim 1, wherein the window mill (32) comprises a cutting surface arranged with an angle to the rotational axis of the window mill substantially identical to the angle of the relatively steep ramp surface (45) to the longitudinal axis of the whipstock, said cutting surface occupying an annular zone centred on the rotational axis of the

- 8 -

window mill (32) and having a radial thickness greater than the radial thickness of the protrusion (B).

3.   A whipstock casing milling system as claimed in claim 1 or 2, wherein the protrusion (B) is provided on the relatively shallow ramp or parallel surface (46) of the whipface.

4.   A whipstock casing milling system as claimed in any of the preceding claims, wherein the protrusion (B) is removably secured to the whipface.

5.   A whipstock casing milling system as claimed in claim 3, wherein the protrusion (B) is removably secured to the whipface by means of at least one threaded fastener.

6.   A whipstock casing milling system as claimed in any of the preceding claims, wherein the protrusion (B) comprises a surface which is ramped at the same angle relative to the longitudinal axis of the whipstock (44) as the relatively steep ramp surface (45).

7.   A whipstock casing milling system as claimed in claim 6, wherein said ramped surface of the protrusion (B) and the relatively steep ramp surface (45) are ramped at an angle of 15° relative to the longitudinal axis of the whipstock (44).

8.   A method of using a whipstock casing milling system for forming a window in the casing of a wellbore, the casing having an inwardly facing surface which defines the inside diameter of the casing and an outwardly facing surface which defines the outside diameter of the casing, the whipstock casing milling system comprising: a whipstock (44) having a whipface, the whipface comprising

AMENDED SHEET

a relatively steep ramp surface (45) and a relatively shallow ramp surface or parallel surface (46) meeting the relatively steep ramp surface (45) at a juncture (A), said surfaces (45,46) being ramped or parallel relative to the longitudinal axis of the whipstock (44), and the relatively steep ramp surface having an angle to the longitudinal axis of the whipstock greater than that of the relatively shallow ramp surface or parallel surface; a window mill (32) secured to the whipstock (44) adjacent the relatively steep ramp surface (45) and operable in use to form an opening in a wellbore casing in which the whipstock casing milling system is located, the window mill (32) being deflected by the relatively steep ramp surface (45) laterally into the casing as the window mill (32) is rotated and forced along the relatively steep ramp surface (45) towards the relatively shallow ramp or parallel surface (46); and a protrusion (B) provided on the whipface, the protrusion (B) forming an extension of the relatively steep ramp surface (45) of the whipface during use of the system; wherein the method comprises the step of locating said whipstock casing milling system in a wellbore casing so that the juncture (A) and the radially opposite outwardly facing surface of casing are spaced from one another by a distance less than the diameter of the window mill (32).

9.   A whipstock casing milling system comprising: a whipstock (44) having a whipface, the whipface comprising a relatively steep ramp surface (45) and a relatively shallow ramp surface or parallel surface (46) meeting the relatively steep ramp surface (45) at a juncture (A), said surfaces (45,46) being ramped or parallel relative to the longitudinal axis of the whipstock (44) and the relatively steep ramp surface having an angle to the longitudinal axis of the whipstock greater than that of the relatively shallow ramp surface or parallel surface; a window mill (32) secured to the whipstock (44) adjacent the relatively steep ramp surface (45) and operable in use to form an opening in a wellbore casing in which the whipstock casing milling system is located, the window mill (32) being deflected by the relatively steep ramp surface (45) laterally into the casing as the window mill (32)

is rotated and forced along the relatively steep ramp surface (45) towards the relatively shallow ramp or parallel surface (46); and a protrusion (B) provided on the whipface, the protrusion (B) forming an extension of the relatively steep ramp surface (45) of the whipface so as to reduce damage to the relatively steep ramp surface (45) at the juncture (A) of the relatively steep ramp surface (45) and the relatively shallow ramp or parallel surface (46) during use of the system; the whipstock casing milling system being characterised in that the protrusion (B) and whipstock (44) are discrete components.

10.   A whipstock casing milling system as claimed in claim 9, wherein the window mill (32) comprises a cutting surface arranged with an angle to the rotational axis of the window mill substantially identical to the angle of the relatively steep ramp surface (45) to the longitudinal axis of the whipstock, said cutting surface occupying an annular zone centred on the rotational axis of the window mill (32) and having a radial thickness greater than the radial thickness of the protrusion (B).

11.   A whipstock casing milling system as claimed in claim 9 or 10, wherein the protrusion (B) is provided on the relatively shallow ramp or parallel surface (46) of the whipface.

12.   A whipstock casing milling system as claimed in any of claims 9 to 11, wherein the protrusion (B) is removably secured to the whipface.

13.   A whipstock casing milling system as claimed in claim 12, wherein the protrusion (B) is removably secured to the whipface by means of at least one threaded fastener.

14.   A whipstock casing milling system as claimed in any of claims 9 to 13, wherein the protrusion (B) comprises a surface which is ramped at the same

AMENDED SHEET

angle relative to the longitudinal axis of the whipstock (44) as the relatively steep ramp surface (45).

15.   A whipstock casing milling system as claimed in claim 14, wherein said ramped surface of the protrusion (B) and the relatively steep ramp surface (45) are ramped at an angle of 15° relative to the longitudinal axis of the whipstock (44).